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Attorney Docket No. 114183-00010

THE UNITED STATES PATENT AND TRADEMARK OFFICE

In Re U.S. Patent Application of:

Graham, et al.

) Group Art Unit: 1742

Conf. No.: 4366

) Examiner: Donald R. Valentine

Application No. ~~10/142,360~~

Filed: October 15, 2001

**For: Electroplating System Having
Auxiliary Electrode Exterior To
Main Reactor Chamber For
Contact Cleaning Operations**

APPLICANTS' APPEAL BRIEF

Mail Stop Appeal Brief - Patents
Commissioner For Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

Applicants submit this Appeal Brief, in triplicate, in furtherance of the Notice of Appeal mailed in accordance with 37 C.F.R. §1.8(a) on August 5, 2004. Applicants request a two month extension of time; hence this Brief is timely filed. This application was filed to provoke an interference with U.S. Patent No. 6,132,587, issued to Jorne, et al. on October 17, 2000. Applicants copied claims 1, 2, 5 and 19 of the Jorne patent as claims 35-38, respectively.

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Appeal Brief

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I. REAL PARTIES IN INTEREST

All right, title and interest in and to this patent application has previously been assigned to Semitool, Inc.

II. RELATED APPEALS AND INTERFERENCES

There are no related appeals or interferences to this patent application.

III. STATUS OF CLAIMS

The application was filed with claims 1 through 34, all of which were cancelled by way of a preliminary amendment and replaced by claims 35 through 38. The status of the claims is as follows:

- (a) claims 35 through 38 are pending;
- (b) no claims have been withdrawn from consideration;
- (c) no claims have been cancelled;
- (d) claim 35 has been allowed;
- (e) claims 36-38 have been rejected;
- (f) no claims have been objected to;
- (g) claims 36-38 are on appeal.

Each of claims 36 through 38 on appeal is included in the attached Appendix A.

IV. STATUS OF AMENDMENTS

No Amendments have been filed subsequent to the final rejection of the claims in the Final Office Action of February 5, 2004.

V. SUMMARY OF CLAIMED SUBJECT MATTER

The present invention relates to an electroplating device (see, for example, Fig. 1, item 50 and specification at page 7, lines 1-3; Figs. 6-8 and specification at page 14, lines 15-17 and page 20, lines 1-2) commonly used in the metallization of semiconductor wafers (Fig. 1, item 55), and particularly semiconductor wafers formed of silicon. Allowed claim 35 (corresponding to Jorne patent claim 1), for example, includes, in combination, a reservoir for containing the electrolyte (Fig. 8, items 303 and 904 and specification at page 20, lines 2-14 and page 21, lines 2-3) for plating a metal such as copper onto the wafer, a holder (Fig. 8, item 906) positioned to hold the wafer (Fig. 8, W) above the reservoir (Specification at page 22, lines 16-17) and a counter-electrode (Fig. 8, item 334 and specification at page 21, lines 18-21) in the reservoir.

The electroplating device of claim 35 also includes means for passing a current between the counter-electrode and the wafer (Fig. 8, item 906, wafer rotor assembly, item 984, a rotor assembly and items 979, plurality of wafer-engaging fingers; specification at page 22, lines 17-22) and a pump for pumping electrolytes from the reservoir to the wafer (Specification at page 27, lines 3-11). Also included in the device is a non-conducting porous separator (Fig. 8, item 375) positioned between the wafer holder (Fig. 8, item 906) and the counter-electrode (Fig. 8, item 334) to control the distribution of the electrolyte and thereby insure a more uniform plating of the wafer (Specification at page 21, line 23 through page 22, line 2).

Claim 36 (corresponding to Jorne patent claim 2) is similar to claim 35, except that it does not call for a non-conducting porous separator. Claim 36 requires that the diameter of the counter-electrode be smaller than the diameter of the wafer holder (Fig. 8 illustrates that the diameter of the anode 334 is smaller than the diameter of the wafer holder 906). Claim 37 (corresponding to Jorne patent claim 5) is similar to claim 36 but does not limit the relationship between the diameters of the electrode and wafer holder. And, like claim 36, claim 37 does

not include an express requirement for a porous separator. Claim 38 (corresponding to Jorne patent claim 19), on the other hand, is similar to claim 35.

It calls for a distributor (Fig. 8, item 375) positioned in the reservoir which

includes a disk having holes therein to provide flows of electrolytes through the disk uniform along a radius of the disk (Specification at page 21, line 23 through page 22, line 2).

VI. GROUND FOR REJECTION TO BE REVIEWED ON APPEAL

The following issues are presented for review by this Board:

- (a) Whether, given the allowance of claim 35, this Board should declare an interference between the present application and Jorne U.S. Patent No. 6,132,587, so that the issues of patentability arising from claims 36-38 can be resolved in an inter partes context;
- (b) Whether claims 36 and 37 are patentable over the combination of Ishida in view of Lytle within the meaning of 35 U.S.C. §103; and

- (c) Whether claim 38 is patentable over the Pearson prior art patent within the meaning of 35 U.S.C. §103.

VII. ARGUMENT

A. The Examiner, Having Found Patentable Subject Matter In Claim 35, This Board Should Declare An Interference Between This Application And The Jorne Patent

As already noted, this application was filed for the purpose of provoking an interference with the Jorne patent. Initially, the Examiner declined to declare the interference on the ground that none of the claims in this application (copied from the Jorne patent) were patentable to applicants herein. Applicants, in response to that position, pointed out to the Examiner that the subject matter of claim 35 was indeed patentable to applicants. The Examiner has agreed, allowing claim 35 in this application and confirming that common subject matter between the present application and the Jorne patent is patentable.

Having taken that position, applicants believe that the proper course here is to declare an interference between the present application and the Jorne patent, at least to the subject matter of claim 35 herein which is identical to claim 1

of Jorne. 37 C.F.R. § 1.606 so specifies that the Examiner's finding patentable subject matter in this application is a condition to declare the interference.

The issue arising from questions of patentability as to other claims in either this application or the Jorne patent can best be resolved in an inter partes proceeding. So the Court held in Schulze v. Green (Fed. Cir., 1998) 136 F.3d 786, 45 USPQ2d 1769. Indeed, applicants submit that it is far preferable to deal with such patentability questions as raised by Jorne's and applicants' claims herein to ensure consistent treatment of the subject matter of both sets of claims. In other words, resolving such issues of patentability in an inter partes context will ensure that the PTO is consistent in both the present application and the Jorne patent.

In view of the foregoing, applicants submit that this Board should declare an interference between the present application and the Jorne patent.

B. The Examiner's Rejection Of Claims 36 And 37 Is Unfounded

As already noted, applicants herein copied claims 2 and 5 from the Jorne patent as claims 36 and 37. The Examiner has taken the position that the subject matter of those claims would have been obvious based on the combination

of Ishida in view of Lytle under § 103. The Examiner acknowledges that Ishida lacks two of the claimed elements, namely the pump and the means for passing current between the counter-electrode and the wafer. The Examiner wrote (Office Action of February 5, 2004):

"These passages of the reference suggest that pressure is exerted on the plating fluid suggesting the presence of a pump and that the diameter of the counter electrode is smaller than the diameter of the wafer holder (applicants recited feature)."

Thus, the Examiner concludes that the Ishida patent suggests a pump.

As this Board is aware, a pressure head can be created by quite a number of things separate and apart from a pump. For example, if the supply of the liquid is simply positioned at an elevated location relative to the wafer, a pressure head can be created without a pump. The Examiner's argument thus is unfounded.

The Examiner seems to recognize the fallacy in his argument and points to the Lytle patent as describing a pump and means for applying current to the counter-electrode and the workpiece holder. The Examiner fails, however, to

demonstrate any teaching to combine the features of these two references. Indeed, the Examiner points to nothing in either reference or within the knowledge of one skilled in the art that would suggest the combination of those features. Of equal importance, however, is the fact that the Ishida and Lytle references were of record during the prosecution of the Jorne application in which these two claims originally appeared. The Examiner did not suggest that the subject matter of those claims would have been obvious in light of the same two references, and hence the prosecution history of claims 2 and 5 of the Jorne patent indicates that the Patent Office has considered the same prior art and has concluded that those claims were patentable over the Ishida and Lytle prior art.

Given that prosecution history, the Examiner should either conclude that those two claims are patentable or should clearly indicate, in the prosecution history of this application, that the same two claims would be found to be unpatentable to Jorne just as the Examiner has argued with respect to applicants. In that event, then applicants can file a request for reexamination of the Jorne patent with the assurance that the PTO will take the same position in both the present application and the Jorne patent.

In sum, as long as the PTO takes one single and consistent position on both applicants' claims and the Jorne claims, applicants can be assured that the PTO will not deny coverage in this application while allowing the same coverage in Jorne.

C. Also Incorrect Is The Examiner's Rejection Of Claim 38

The Examiner has also rejected claim 38 over the Pearson reference under the provisions of 35 U.S.C. § 103. The Examiner recognizes that the subject matter of the Pearson patent has nothing to do with the subject matter of claim 38. Indeed, the Pearson patent is directed to a machine for electroplating of metals; it is wholly unrelated to the electroplating of wafers in the semiconductor area.

Recognizing that shortcoming, the Examiner says (Office Action of February 5, 2004):

"The apparatus of Pearson does not function to electroplate a wafer, however, statements of intended use are not given weight when determining the patentability of apparatus claims."

The Examiner then goes on to commit a fatal error in his rejection. On page 4 of that Office Actions, he says:

"It would be considered within the skill of the art to provide 'distributor means' having holes for arranged to provide uniform electrolyte flow because the reference provides a structure which performs a function apparently as is desired by applicants in apparatus which have elements in combination similar to those of applicants'."


The fallacy in the Examiner's position is that there is no objective evidence that one skilled in the art would find it obvious to make a change in a plating device for industrial applications so as to make it more like a plating device for semiconductor wafers. While it is, of course, true that a statement of intended use may not necessarily be given patentable weight, the Examiner's position cannot be sustained because it is based on obviousness rather than anticipation. The problems involved in plating metals like those in Pearson are radically different than issues of plating semiconductor wafers. Those problems are simply not in analogous fields of endeavor and the PTO has a consistent policy in recognizing that fundamental difference.

In short, the rejection based on Pearson is unwarranted.

CONCLUSION

In view of the foregoing, applicants submit that this Board should declare an interference between the present application and the Jorne patent, either as a consequence of the Examiner's allowance of claim 35 or as a consequence of the Board finding claims 36-38 are also patentable.

Respectfully submitted,



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